BADGER ARRL NEWS

Published by the MRAC

MAY 1926

Come to the Badger Ham Round-up.

See page 13 for details.

From Full Volume to a Whisper

without de-tuning

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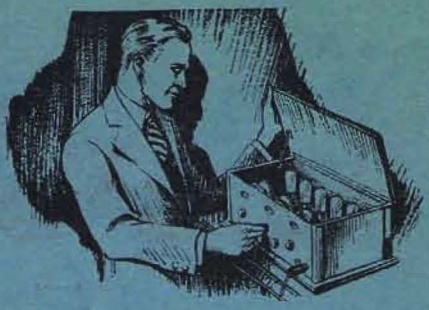

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Volume 1. Number 3.

Badger A R R L News.

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Incorperated.

Fred Catel 9DTK Editor.

Robert E. Knoff, 9DXH, Associate Editor.
Ben J. Chromy, 9CJO. Technical Editor.
Geo. Coates, 9DTK. Art Editor.

Fremont D. Schunck, 9AFZ, Traffic Editor.
Sam Snead, Business Manager.
John M. Meyer, 9BKR. Circulation Manager.

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EDITORIALS

COMMUNICATIONS DEPARTMENT ELECTION

From Headquarters comes the news that at the last Board of Directors meeting, a complete reorganization of the Traffic Department was authorized. The name of the department has been changed to "COMMUNICATIONS DEPARTMENT" and the title of the man in charge of this department has been changed from Traffic Manager to "COMMUNICATIONS MANAGER"

Mr. F.E. Handy, who so ably held down the job while Mr. Schnell was away with NRRL, has been appointed to the position. There has also been created a new position known as Sectional Communications Manager. These SCM's are to take the place of the A D M's and will be elected to office for a term of two years. The positions of CM, DS and DM have been abolished.

This certainly is a change for the better and surely should speed up the work of this department.

We hope that all the members in this section will take advantage of their prerogative and vote for the man of their choice.

The Board of Directors have designated Wisconsin as a section. We are now supposed to nominate candidates for the position of SECTIONAL COMMUNICATIONS MANAGER. and then to elect one of the nominees. The job at its best is a thankless one with much grief and little praise. Much work is needed to keep up the excellent reputation of our state. It is my opinion and also the opinion of most of the fellows of the club that the present occupant of this position has filled the bill to

our entire satisfaction. He has only one fault. that is, he is to lenient with the laggards who are always late in reporting. He will hold his report to the last minute thinking that they will still report. This Big-heartedness on his part has on several occasions laid him open to criticisms, but we all know that his whole heart and soul is in the work and have forgiven him for the times when our reports were among the missing in "QST".

I do not believe that we could make a better choice than to elect "CLARENCE N. CRAPO 9VD" our "SECTIONAL COMMUNICATIONS MANAGER".

He has always been for the HAMS "first last and all the time." So lets all get together and "PLUG" and pile up a big vote and show him he has our confidence.

"Our Little Paper"

From the comments received both personal and by letter, it appears that our April Number of Badger News went over "BIG". We wish to take this opportunity to thank the gang for the support they have given us so far. We hope you will continue with your support as we willsurely need it. Let us again emphasize the fact that the surest and best way to make this paper a success is to support our advertisers and to let them know you aredoing it by mentioning the club or this publication.

Now that we have succeeded in putting out this paper in a presentable form let us endeavor to keep it that way.

Prize Membership Contest

We forgot to announce the prize winner in our last issue. Jack Piper 9DKA of New Holstein Wis. won the prize, it was a twin audio transformer unit, donated by our associate editor Mr. Knoff.

He copped the prize with 5 new members.

We wish to mention here that we hope all you new members like the little surprise sent you and that you are making good use of it. There are still some of these Universal Templates left and we will give each new member one free until the supply runs out. So get your friends to sign up the membership blank early, and get one of these useful gifts.

Tests

Headquarters announces some new tests. These tests are to take the form of twoway reliability tests with Australia. They will start May 23rd and end June 6th. These tests will be of interest to all hams, whether you are an experimenter, relayer or DX man, there will be something doing for all of you during these tests.

The main tests will be message handling by relay stations using 15,000 kc (20 M) and 7500 kc (40 M) equally. There will also be a place for 5 meter transmitters on this program, and for both 5 and 10 meter receivers, too, so this is a tip for all of you to get your sets tuned up for these tests. See May QST for full dope.

F. C.

The Amplifier and Oscillator

(Part Three)

By Ben J. Chromy AIEE-IRE.

Amplification

The three element vacuum tube always acts as an amplifier regardless of whether it is used as a detector, oscillator, modulator or only as an amplifier. To secure stable amplification action from a vacuum tube several conditions must be fulfilled. One of these conditions is the tube must have a characteristic curve the steep portion of which is practically straight and consequently the tube should be fairly highly evacuated. The straight sloping portion of the characteristic as shown between points A-B in Fig. 8. is desirable in amplifier tubes for faithfull reproduction of the amplified signal. The grid is biased by applying negative potential to it by means of a "C" battery until the straight portion of the curve is worked as shown in Fig. 8.

The object in the amplifier tube is to reproduce in the plate circiut as pulsating direct current the wave form impressed on the grid. This pulsating direct current in the plate circiut flows through the primary of the transformer and is reproduced in the secondary as an alternating current. This alternating current is then impressed upon the grid of the next amplifying tube.

The voltage amplification factor of a vacuum tube is denoted by the Greek letter m (pronounced mu). This factor is defined by the I. R.E. as the rate of change of the plate potential with respect to the negative grid potential, the plate current remaining constant. To determine this experimentally, connect up the apparatus necessary to get mutual characteristic curves of a tube as shown in Apr. 1926 Badger ARRL News, Fig. 5 Vacuum tubes part two. The plate voltage is adjusted to about 35 volts and the grid voltage to around 0. The plate current is noted. The plate voltage is then increased to 45 volts and the plate current noted. The grid voltage is then decreased until the plate current is again at the value it was when the plate voltage was 35 volts, say this grid voltage change is one volt. The amplication factor is then(45minus 35) devided by 1 =10 where 1 is the change in grid voltage.

Amplifier tubes should not be forced or worked under an overload unless distortion which will result is immaterial. This distortion is the result of a modified wave form derived from operating the amplifier under abnormal conditions, since harmonics of the fundamental increase more rapidly in amplitude than the fundamental itself when the output is increased.

The familiar hissing present in

multistage amplifiers is caused by the uneven flow of electrons from the filament. These electrons are given off in tufts, much as light is transmitted to the Earth. This shows that what to us appears to be continuous is really discontinuous and of definite units, thus giving rise to the Quantum Theory.

Regeneration and Oscillation

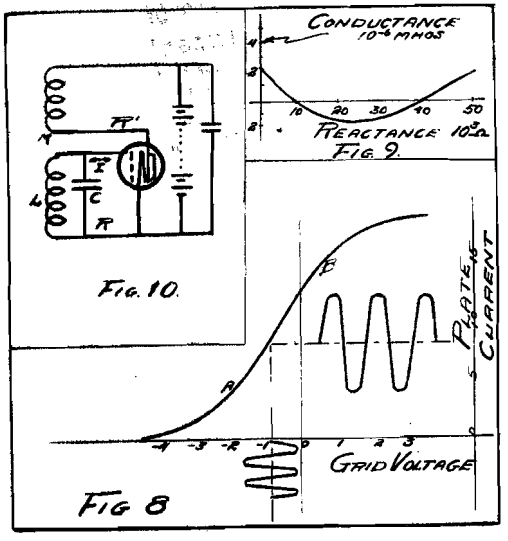
Regeneration and oscilliatory action will be taken up together since the later is practically the same as the former only that it is carried out to a greater degree. The oscillator action in its fundamental form is probably familiar to all, however, a few words regarding it will not be out of place here. From the diagram, Fig.10, it seems that the current from the "B" battery will flow through the tickler coil. In flowing through the tickler coil the current sets up a magnetic field that interlinks with the grid coil and induces a voltage into the grid coil. The grid coil is connected in such a way that a negative charge is placed upon the grid and the plate current is practically stopped. Since the plate current is stopped the magnetic field of the tickler coil collapses and a voltage is again induced into the grid coil but in such a direction that the grid becomes positively charged. The positively charged grid assists the plate current flow and causes the magnetic field of the tickler coil to build up again. The increasing magnetic flux of the tickler induces a voltage into the grid coil and causes the grid to become negatively charged again. The valve action of the tube keeps on this way indefinately.

When a radio frequency voltage is impressed on the grid and reproduced in the plate circiut as a pulsating current this current causes the magnetic flux of the tickler coil to vary and induce a voltage into the grid coil. This induced voltage reinforces or auguments the impressed radio frequency voltage as long as the induced and impressed voltages are synchronous, that is, in step although not in time phase.

When excessive regeneration is caused to take place the two voltages get out of synchronism and the impressed voltage will become distorted. There is another method of explaining the regenerative and oscilliatory action of a vacuum tube beside that just used. This second method consists of introducing the so called negative resistance into the grid circiuts. It has been shown experimentally by Miller of the Bureau of Standards, that this negative quantity called negative resistance varies with the degrees of coupling between the tickler coil and the grid.

Suppose the input resistance, that is, the resistance from the filament to the grid of a tube is measured for various types of loads in the plate circiut. From these measurements it will be seen

that the reactance load causes the conductance of the grid or input circiut to become apparently negative for certain values of reactance. If a curve similar to that in Fig. 9, is plotted from the values obtained by the measurements then the approximate values of plate reactance anb grid conductance at which the tube will oscillate could be determined.



In order to make the explanation more comprehensive the circiut shown in Fig.10, will be used as the basis of explanation. Since the regenerative action has been spoken of as a negative resistance, a term which is seldom yet met with in practice it is well that the conditions which govern this resistance be known. In the diagram, Fig.10,Mu is the mutual inductance between the tickler coil and the grid coil, L is the inductance of the grid coil, R' is the resistance of the plate circiut and R is the resistance of the grid circiut.The equation for the current in the grid circiut may be derived by algebra and is $I=E\left[R-(Mu\ M/R'C)\right]$. Where

E is the voltage impressed from the grid to the filament and Mu is the voltage amplification factor of the tube. The quantity (Mu M devided by R'C)is the term that decreases the input resistance R. Since the mutual inductance M increases as the coupling between the tickler and grid coil is increased and the negative quantity M devided by R'C,is subtracted from the resistance of the grid circiut R it seems that when the coupling is great enough the volume of I becomes negative also and the tube is in a state of oscillation and is delivering high frequency current instead of receiving it.

Improving The Neutrodyne

By L. S. Hillegas-Baird*

In an effort to obtain clear reception and prevent oscillation in radio frequency amplifiers, designers of the neutrodyne have balanced this receiver with small neutralizing capacities, using one condenser for each tube in the radio frequency circuit, but

*9HO-9OV'Assoc. I.R.E., Past-President M.R.A.C.

but frequently, particularly with home built receivers, neutrodynes are found that are by no means as efficient as they could be made.

The trouble can usually can be traced to excessive oscillation at the shorter wavelengths, and when correcting this it is advisable to consider the cause and effect of oscillation in the set.

It is evident that the circiuts of a radio receiver must be adjusted up to oscillation to insure efficient reception, but some controlling factor must be provided or the tubes supply too much energy and set up continous oscillation, or the regenerative whistles. The neutrodyne controls this factor with a counter electromotive force introduced by means of neutralizing condensers. Unfortunately, the adjustment for a wavelength of say 500 meters is not suitable for a wavelength of 300 meters, and vice versa, since receivers tend to oscillate more at the shorter wavelengths. and if oscillation at short wave lengths is balanced out there is such a lack of sensitivity at the longer wavelengths that many stations cannot be heard at all.

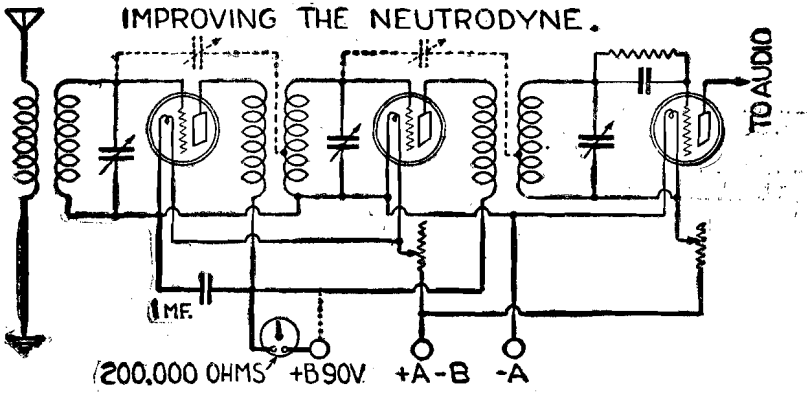
This may be remedied by using a non-inductive variable high resistance in series with the positive "B" battery lead running to the primaries of the radio frequency transformers as shown in the figure. The 200,000 ohm non-inductive type of resistance unit made by the "Central Radio Laboratories", is very effective for this purpose. By using this resistance the oscillations in the radio frequency amplifiers may be controlled readily.

The two neutralizing condensers which are connected from the grids of the two R. F. amplifier tubes to the secondaries of the succeeding R.F. transformers, may be removed from the circiut.

An important feature in changing the circuit is to connect a by-pass condenser of approximately mfd. exactly as shown in the diagram bridged from plate to filament circiut. Most neutrodynes already have a condenser that can be connected in this position it must be added to the others.

The modified receiver will use less "B" battery current than before, and the receiver is rendered more sensative, and volume controlled smoothly and accurately.

IMPROVING THE NEUTRODYNE.



REMOVE WIRES INDICATED BY DOTTED LINES, ADD WIRING INDICATED BY HEAVY LINES.

Doings at the Clubs

Milwuakee Radio Amateurs' Club

Officers

President Chas. S. Polacheck
Vice-President Fred Catel
Secretary-Treasurer John M.Meyer

Board of Directors

Chas S. Polacheck Chairman
Fred Catel
Erwin G. Nickel
Fremont D. Schunck
Sam Snead
George F.Coates
Malcomb F. Jameson

Drawing contests have been held at several meetings for the purpose of boosting attendance. Every member who arrives on time is given a chance.The prizes are receiving tubes, donated by Mr. Knoff of 9DTK. Much interest has been shown in these contests and the boys are showing up on time now.

The Badger ARRL News has met with much favorable comment on the part of the members.Good co-operation is being received and the future looks bright.

The club recently gave further evidence of its spirit by taking a firm stand against untruthful radio advertising.Very encouraging results have already been noticed in this city.

A raffle was recently held by 9ELV,at which a power transformer key and T. C. Ammeter were given away.

At a recent meeting a very interesting talk was given by Prof. Wood of ths Univerity of Wisconsin Extension Devision. Prof. Wood spoke on static electricity and illustrated his talk with various experiments.

The club has become the owner of a Multigraph press on which future editions of Badger News will be printed.

At the meeting of April 8th, Mr. Burton F.Miller, chief operator of station WHA,9XM-9DW. Mr. Miller spoke very interestingly on short wave phone and crystal control of transmitters.

A large number of new hams have made their appearence in Milwaukee, bringing with them new enthusiasm.A hearty welcome is accorded these newcomers, since it is their pep which we all rely on to further the interests of Amateur Radio.

We are looking for more non-resident members. We feel that we can give them much more than one dollars worth worth of -enjoy ment and imformation.

Another party will be given sometime in June to properly close the season full details will appear elsewhere in this is ue.

Madison Radio Amateurs Club

Phillip Zurian Secretary

At the next meetin g of the club which will be May 6th Mr.J. Reiner of the Madison Central High School,will give a talk and demonatration on reflection and refraction of light waves and comparisons of their action with short waves.

At the regular meeting of April 15th, Mr. Hoffman gave an excellent talk on crystal controlled transmitters. After Mr. Hoffmans talk refreshments were served and a hamfest followed.

Any out of town hams visiting Madison are cordially invited to attend our meetings which are held the first and third Thursday of the month at the Burgess Laboratories.

LaCrosse Radio Association

A. D. Sanial Secretary

One more meeting of this organization is scheduled before the outing planned for the First of May which will terminate its activity for the season.

At the last meeting on April 15, an interesting talk was given by Leslie Jenks,9AKY,on the Wisconsin Underwriters Rules and also the"Construction of a Laboratory Oscillator" by Bernard Muehr.

Plymouth Radio Club

R. Sebald Secretary

The Plymouth Radio Club was organized in March 1925 and has been growing ever since.

We are proud to mention that two of our members 9AZY and 9CXK, are also non-resident members of the "MRAC".

As far as hams are concerned, our "Biggest Little City" looks very prosperous because we know of at least two more to be licensed very soon.Our club was organized for both hams and BCL's but so far we have mostly catered to the BCL's.

We are getting a transmitter at the club which will be in operation in about two or three weeks.

The F.O.E.state convention will be held in Plymouth this year and the hams expect to handle traffic 24 hours a day for the delegates.

Chicago Radio Traffic Assn.

Ray T. Prazak Secretary of the CRTA writes us a nice letter praising the MRAC, and promises us some news for future editions and wants to know the meeting nights of the MRAC.

(For everybodys information: the MRAC, meets every Thursday evening at 8:00 PM. in the Trustees Room in the Public Museum, 9th and Grand Ave.)

Wisconsin Traffic Reports.

Call	Orig.	Delv.	Rel.	Total
Dist.1. Traffic total,648.				
9DTK	87	42	127	256
9DOL	35	19	98	152
9BTK	1	5	69	75
9BKR	46	2	2	50
9RH	6	7	13	26
9BWO	3	17	4	24
9BSS	10	11	1	22
9CDT	4	6	0	10
9VD	3	0	6	9
9CIB	3	1	3	7
9AFZ	1	2	2	5
9ATO	3	1	1	5
9NY	1	1	1	5
9CKU	0	0	1	1
9ELD	1	0	0	1
Dist.2. Traffic total,331.				
9XM	47	22	106	175
9EK	30	26	26	82
9OM	1	0	24	25
9EAR	1	0	12	13
9EAN	3	3	6	12
9EGW	1	1	10	12
9DLD	0	6	2	8
9BIB	0	0	2	2
9COI	0	0	2	2
Dist.3. Traffic total,357.				
9DKS	58	56	25	139
9DKA	33	34	68	135
9ANE	21	3	26	50
9CGL	7	8.	2	17
9BVA	0	0	6	6
9AZY	2	2	0	4
9CXK	4	0	0	4
9EMD	0	1	1	2
Dist.4. Traffic total,30.				
9AZN	7	7	14	28
9CAV	2	0	0	2
Dist. 5.				
9ELI	8	5	54	67

District 1.

9DTK says it appears that 40 meters is getting erratic as summer approaches and that 80 is getting better.

9DOL now has a commercial ticket and expects to operate on the lakes this summer.

9BKR Badger News and school keeps me to QRW to do much traffic hand ling.

9RH traffic moving better on 40 now.Expects to increase power soon.

9BWO was QSO an Aussie and 2 Hu's, 8CNS and 9EAU were visitors at the station.

9BSS still going on 80 meters.

9CDT is trying to get set to work on 40 meters.

9CIB will have crystal with 50 watt power amplifier soon.

9AFZ finished rebuilding but again experimenting with antennas.

9ATO says not much traffic floating around these days. Hopes to rebuild again in the near future and do some real DX.

9NY received a card from G5AX on 40 meter transmission. Also doing good work on 20 meters working 6XG at noon.Jr.Op QRM bad HI!

9CKU did good work on 40 meters until his fiver went west. Says thats what takes the joy outa life.

9ELD expects to be on the lakes and on salt water soon.

9UH will QRT for the summer.

9EHM transmitter being rebuilt & new vertical antenna of the brass tubing type is to be erected soon.

9BTK is operating on both 40 and 80 meters, but most of the traffic was handled on 80. I have no DX to

report as practically all operating is done between 4 and 6 P.M. My only schedule is with NAJ on Wednesday nights.

9BEK wants to be credited with 5 messages,all originated. He is attending the U of W and only gets to operate when he comes in from Madison.

District 2.

9XH-9EK is on every Monday,Wednesday & Friday nights from 8 to 11 P.M. Always QRV for traffic.

9OM It is hoped that the 2nd Dist. will soon jar loose and make themselves heard.Conditions good at 9OM. But QRW from school QRM.

9DZV My 86 foot mast down in a storm so I will not be on the air for sometime. I have not been on in the past on account of work at school and at 9XM-9DW-WHA the U of W stations. I am planning to operate on the lakes this summer so my reports will be nil.

9BIB have been having lots of fun with my crystal controlled xmitter. Had nothing but trouble getting it to work, but now have it perking fine on 40.2. Fundamental of crystal is 80.4. Am amplifying the second harmonic. Africa is best DX with it. Using 210 as MO and 203A as PA.

9EGW using DeForest"H"tube with 900 volts dry "B" batteries on plate. Old 9CPT is on again with UX210 and signing 9EAV.

9COI have entirely new station now.Just built a low loss receiver and transmitter using Hartley circuit and one 5 watter. Perks out great.

9EAN not much luck on 40 only on one week during spring vacation from U of W. Best service; message sent to party in Milwaukee thru 9ATO and answer received in 5 minutes FB.

9EAR working breakin here with fair sucess.Am going to fix it up better as it is the only thing. Hear quite a few foreign hams but dont seem to connect.

9DLD working on 40, 80 and 175 meters but will stick to 40 for the summer.

District 3.

9DKA will install 1 inch tube antenna to prevent swinging.Says 9DFP a new station, will soon be on the air. 9DWT in New Holstein off the air at present.

9ANE compliments 9DKA for his reliability as an ORS. 9ANE has schedules for every day in the week. He is one of the busiest stations in Marinette.

9CGL seems to be the only active station in Sheboygan. CGL reports a new station, 9BZA operating on 40 and 80 meters.

9BVA has his station in good working order again but lacks time to operate it.

9AZY makes his first report. Glad to have you among us.OM.(DS) Limberg uses a 50 watter on 40 and 80 meters.

9CXK sent in his report on the stationery of the Plymouth Radio Club of which he is president.Here is a good chance to make hams out of BCL's.

9EMD is rebuilding for a 50 watt station.Not much traffic passing thru his station at present.

9AEU is still busy at the U but is looking forw_rd to vacation so he can pound key.

District 4.

9AZN handled a total of 28 msgs mostly built up from a schedule at 5:15 PM. with 9CM. Wave used was the 40 meter band. This station will soon be rebuilt as it is contemplated placing the transmitter more compactly and using smaller size indutances.

9CAV reports things quiet at Alma Center.

9BSO of Hudson has not reported and 9DCX of Chippewa Falls is not only remodeling but is building a permanent shack for operating. The three stations in La Crosse except 9AZN namely 9AKY, 9PJ and 9BKC are inactive. 9EIL of Osseo has a new job operating a B. C. station at Eau Claire but says he will have some time to do ham work later.

District 5.

9ELI is the only station reporting from this part of the state. 9DPR has joined the ranks of the benedicts and naturally will not be on the air for some time.

C U at the

Badger Ham Round-up

Saturday June 12th

At

Milwaukee Wisconsin

Hamateur News

Don Seibel prominent MRAC member, suffered severely when he was hit by an auto while comming home from work. The extend of his injuries are a compound fracture of the left leg and painful abrasions and scalp wounds. Don will be confined in bed for the next 6 weeks.

_···_

We just received the sad news that Mr.Hebal, father of Wm.Hedal 9AGT, was run down by one of the fire department trucks at Stevens Point on April 12th and killed.

The gang sympathizes with 9AGT and offers its condolences to the stricken family.

_···_

Mr. E.J. Simmonds, G2OD worked Australia on fone, March 21st, on a wavelength of 45.3 meters with an input of 95 watts. When international fone becomes an every day affair we will be hunting up our old French, German and Spanish texts, as well as cultivating an English accent. Don't cha know.

_···_

We found the following squib in the Wireless World; "A house without a radio is like a house without bath". Applying the same to the ham game we get; "A ham without a wavemeter is like a house without a bath."

_···_

In England the BCL's are not allowed to listen to a friends radio over the telefone for fear of being prosicuted. (Is this a hardship or a blessing?)

···_·_

Prize Contest!!!

6XBR, the portable station of which you read about in"QST"some time ago is going on a tour of the United States starting May 4th, 1926. 6XBR will be controlled from Hollywood with the aid of the amateurs.

6KY (40 meter band) at the West Coast Studios will be the controlling station. All orders to and reports from 6XBR to 6KY will be QSR'd by amateurs.

$1000:00 in prizes will be given away at the end of this trip; $500 first prize, $250 second, $100 third and four prizes of $50 each. The method of distributing these prizes will be decided very soon. The first prize will go to some American amateur.

As there will be much traffic for both coasts relay stations are asked to QRX for 6XBR.

Warner Bros. of the West Coast Studios want to make this the biggest thing of its kind ever put over by the amateurs.

The first prize of $500 will be given to some American amateur who can show the best consistant QSO of 6XBR on 40 meters during the entire trip. A fixed schedule at a certain hour will be set for this report. For further information write the West Coast Studios at 5842 Sunset Blvd., Los-Angeles Calif.

In The Spring

(The following poem appeared in the first copy of "The Midwest Inkslinger". It sure hits the nail on the head. By the way L .Boyd Laizure has reorganized the Publicity Department and is carrying on the good work.)

In the spring, a young man's fancy
Lightly turns to thots of love,
And the traffic on his hands he
Finds it harder still to move.
What's the answer,whats the reason
What's the remedy for this?
Every year just at this season
Many hams we straightway miss.
Schedules seem less attractive
Gainst the chance to steal a kiss,
Shun I beg,the charms distractive
Of the other fellow's Sis!
On your optics clap the blinders
And with cotton stuff your ears,
Heed these simple two reminders,
When some cute YL appears.
Stand your ground and keep the stn
Thru the summer QRN,
Here's our earnest invitation
Join our gang and swing your pen!
Can the dizzy hesetation,
Can the Charleston,can them all,
Make use of key lubrication,
Don't let rust get on your call.
Keep the cobwebs from your attic,
Lick the crackling popping static
Let not your progress stall.
Here we call to mind the fable
Of the 'hopper and the ant.
First class hams stick to the table
Hopper hounds are those that can't
Now our key's in need of greasing,
So we needs must CUL,
If this issue has been pleasing
Will you kindly QSL?

L.B.L.

BADGER HAM ROUNDUP

Under The Auspices Of The M R A C

A gathering of the radio amateurs of Wisconsin and vicinity will take place at Milwaukee on Saturday June 12th. The following is a tentative program of the activities which are being sponsored by the:

Milwuakee Radio Amateurs' Club

9:00 A.M.....Reception and registration of guests in the Journal Building, 4th and State Streets. Second floor.

12:00 Noon.....Luncheon at Gimbels Grill Room.

1:30 P.M.....Auto Tour around the city including visiting of several amateur stations.

3:30 P.M.....Hamfest, Traffic and Technical meeting in the Trustees Room of the Public Museum, 8th and Grand Avenue.

5:30 P.M.....Lecture on: Short Wave Radio Work in the Pacific Fleet by Lieut. Fred H. Schnell, exNRRL 1MO. (Illustrated with lantern slides.) Trustees Room, Public Museum. This will be one of the first showings of the pictures made by him on the cruise of the NRRL.

7:00 P.M.....Banquet at the Hotel Maryland, 4th and Sycamore Sts. There will also be other speakers on timely subjects, the banquet will also be replete with special stunts of all kinds as well as some very interesting (not dry) talks.

Further details will appear in the June issue of Badger ARRL News, but the above should be enough to make every real HAM want to be in Milwaukee on June 12th.

Send your registration in NOW to John M. Meyer Secretary M R A C 888 44th St., Milwaukee Wis.

TWO dollars will cover everything but the noon luncheon. To help us in making arrangements please mail your reservations in early and tickets will be promptly sent to you upon receipt of money. This applies to both the local and out of town hams.

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